PUBLIC ABSTRACT

Applicant (primary) name: McDermott Technology, Inc.

Applicant's address: 1562 Beeson Street (Street) Alliance (City) OH (State) 44601-2196 (Zipcode)

Team Members (if any):
(listing represents only participants at time of application, not necessarily final team membership)

Name	City	State	Zipcode
Duke Energy	Charlotte	NC	28102
Babcock & Wilcox Co.	Barberton	OH	44203-0351
CONSOL Energy Inc.	South Park	PA	15129

(Use continuation sheet if needed.)

Proposal Title: Cliffside Optimal Multi-Pollutant Abatement System

Commercial Application: New Facilities Existing Facilities

Other, Specify:

Technology Type:

Estimated total cost of project:
(May not represent final negotiated costs.)

Total Estimated Cost: $ 148,586,818

Estimated DOE Share: $ 74,281,881

Estimated Private Share: $ 74,304,937

PUBLIC ABSTRACT (cont'd)

Anticipated Project Site(s): Cliffside, Rutherford County NC
Location (city, county, etc.) State Zipcode

Location (city, county, etc.) State Zipcode

Location (city, county, etc.) State Zipcode

Type of coal to be used: Northern Appalachian Blacksville #2
Primary Alternate (if any)

Size or scale of project: 5,327
Tons of coal/day input

And/or

592 MWe Megawatts, Barrels per day, etc.
Other (if necessary)

Duration of proposed project: 48
(From date of award) (Months)

PRIMARY CONTACT:

For additional information, interested parties should contact: Dennis K. McDonald
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City State Zipcode

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Barberton OH 44203-0351
City State Zipcode

PUBLIC ABSTRACT (cont'd)

Brief description of project:

This proposed CCPI project, "Cliffside Optimal Multi-Pollutant Abatement System" (COMPAS), will be a full-scale demonstration of a cost-effective system to attain overall excellence in coal-fired power plant emissions control. As part of Duke Energy's effort to satisfy anticipated environmental control regulations, the project will retrofit Unit 5 at the Cliffside Steam Station (CS 5) with an array of integrated/synergistic emissions technologies provided by Babcock & Wilcox Company. Upon successful implementation of the COMPAS project, CS 5 will be among the cleanest coal-fired power plants in the U.S.

The Cliffside steam station is located on a 1100 acre site in southwestern North Carolina, near the town of Cliffside. The newest generating unit, CS 5 went into commercial operation in 1970. CS 5 was recently retrofitted with a new SCR and low-NO_x combustion system. At 592 MW gross generating capacity, CS 5 is representative of the fleet of large, aging, but still economically viable domestic generating units.

The COMPAS project will provide a multi-pollutant control system that will attain very low emissions levels for the individual pollutants and the aggregate total. Performance targets for the plant include the following: SO_2 reduction of 99.5%, a higher removal rate than that of any existing domestic coal-fired plant, and concomitant acid gas reductions; total particulate (including solids, sulfuric acid mist, and $PM_{2.5}$) emissions reduction to 0.006 lb/MBtu, about 40% below the most stringent level permitted today (with H_2SO_4 mist not included), and the associated reduction of "blue haze" plumes; mercury emissions reductions corresponding to at least 90% of the mercury contained in the fired coal; NO_x emissions, controlled through SCR and low-NO_x combustion system installed separately from this CCPI project, reduced to levels near the lowest of any domestic coal-fired plant.

The multi-pollutant abatement concept is based on understanding of the characteristics of gas streams and the design, sequencing, and integration of contaminant control components for maximum synergistic benefits. A core component of COMPAS technology is the Integrated Advanced Tower, which integrates wet scrubbing, wet electrostatic precipitation, mercury removal and liquor handling functions for optimal results. The total costs for the system will be below the total for separate components designed to attain the performance targets without the synergistic advantages.

After installation of the COMPAS facilities, a six-month performance test phase will be conducted. Fuel for the CS 5 test period is to be a northern Appalachian coal of 3% nominal sulfur content, to be provided by CONSOL Energy. A commercial level of availability is anticipated, beginning with the first year of commercial operation. The Babcock & Wilcox Company will provide overall project management for the four year duration of the project; and McDermott Technology Inc. will manage the CCPI contract with DOE.

PUBLIC ABSTRACT (cont'd)

The technologies demonstrated will be widely applicable in the near term for such potential commercial deployments as retrofits into existing plants for which flue gas desulfurization scrubbers are envisioned and as initial installations in new plants. Coal is our nation's primary indigenous energy resource. A successful outcome of the COMPAS project will provide cost effective options to satisfy our nation's energy and environmental needs – allowing our existing coal-fired fleet to continue operations in an environmentally responsible manner; facilitating the construction of new coal-based generation; and, thereby, contributing significantly to our nation's energy security.